

## CENTRAL INTELLIGENCE AGENCY

## INFORMATION REPORT

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SECURITY INFORMATION

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COUNTRY	East Germany	REPORT	
SUBJECT	Werk fuer Fernmeldewesen HF (OSW) Tube Production	DATE DISTR.	22 May 1953
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This is UNEVALUATED Information

THE SOURCE EVALUATIONS IN THIS REPORT ARE DEFINITIVE.  
THE APPRAISAL OF CONTENT IS TENTATIVE.  
(FOR KEY SEE REVERSE)

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1. Production of vacuum tubes in January 1953:

<u>Item</u>	<u>Planned Production</u>	<u>Actual Production</u>
Metal ceramic tubes	6,500	4,600 (including 1400 LLD 7 1000 LD 9 800 LD 11 1400 LD 12)
Cathode ray tubes	10,000	6,000
Radio tubes	180,000	160,000
Other tubes	Plan more or less fulfilled.	

2. Tube production of the Development Branch, First Quarter 1953: (planned)

<u>Type</u>	<u>Total First Quarter</u>	<u>Value in thousand DM East</u>
<u>a. Large transmitter tubes</u>		
RS 566	36	201.6
RS 568	16	56.0
RS 255	6	16.8
<b>TOTAL</b>	<b>58</b>	<b>274.4</b>
<u>b. Other transmitter tubes and technical tubes:</u>		
<u>Other transmitter tubes</u>		
HF 2730	25	17.2
HF 2780	3	-
HF 2815	5	0.1
<u>Magnetron</u>		
HF 2332 a	14	0.4

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(Note: Washington Distribution)

25 YEAR RE-REVIEW

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<u>Type</u>	<u>Total First Quarter</u>	<u>Value in thousand DM East</u>
<u>Cathode Ray Tubes</u>		
HF 2067	15	7.5
HF 2786	30	19.5
HF 2205	15	9.8
<u>Supericonoscope:</u>		
HF 2745	15	11.2
<u>Multiplier:</u>		
HF 2740	35	19.6
<u>b. Miniature Tubes</u>		
ECC 81	55	0.8
EY 51	20	0.1
6 AX 5	150	1.2
<u>Noise Diodes:</u>		
HF 2584	5	-
HF 2589	5	-
<u>High tension rectifier:</u>		
.V 30/0.1 h	50	1.4
<u>Diodes:</u>		
SA 100	10	0.3
SA 102	10	0.3
<u>Rare gas high pressure lamp:</u>		
XBO 500	15	1.4
<u>Electron tubes:</u>		
T.113	10	0.2
T.114	20	0.3
<b>TOTAL</b>	<b>507</b>	<b>91.3</b>

3. 1953 tube research & development program:

Plant Number	Title	Money Allocated	
		1952	1953
21001	(3 kw television tetrode 3 kw television triode	80	60 <sup>3</sup>
21002	20 kw television triode	60	70
21003	730 magnetron	30	100
-	LG 80 cut-off tube	15	Nil
This project was actually completed in 1952)			
21004	LG 79 cut-off tube	-	70
21005	High voltage ignition	-	85

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Plant Number	Title	Money Allocated	
		1952	1953
21006	Moving field tube 6-8 cms (two types) <sup>4</sup>	-	100
21007	Klystron 3-8 cms (two types) <sup>5</sup>	70	80
21008	EL 153 transmitting triode	-	45
21009	50 kw short wave tube	-	150
21010	ECH 81 mixing tube	-	35
21011	EBF 80 duo-diode pentode	-	35
21012	Push-pull tetrode 500 ma/s <sup>6</sup>	-	45
21013	EC 80 decimeter triode	-	45
21014	LV 13 ballast tube	-	60
21015	AG 1041 thyatron <sup>7</sup>	-	45
21016	To increase the life of the 6AG7 and 6AG7 <sup>8</sup>	15	45
21017	EF 80 broad-band amplifier	-	35
21018	LG 76 out-off tube	-	40
21094	ECC 181 (12 AT 7)	10	15
21095	PL 81 (21 AG) <sup>9</sup>	10	25
21096	FY 80 (19 W 3)	10	20
21097	PL 83 (15 AG) <sup>9</sup>	10	20
21098	PCL 81	10	20
21099	EF 85	-	30
21100	EC 92 (6 AB 4)	-	15
21101	EABC 80	-	30
21501	To improve the life and VHF characteristics of metal ceramic tubes <sup>10</sup>	60	120

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Notes on items listed above:

1.

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2. F- = Forschung = research

V- = Vorentwicklung = preliminary development. (No orders of this type have been received by the tube development department).

K- = Konstruktive-Entwicklung = design and development culminating in the manufacture of the tube.

3. The sums allocated are in thousand DM East. The 1952 figure is the sum actually spent in that year on the project.

4. moving field tube:

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In 1952, the moving field tube type HF-2723 was developed. It is planned to develop in 1953 an Anfangestufenverstaerkerroehre (large voltage amplification, low power and noise factor), and a Leistungsverstaerkerroehre (large current amplification with little voltage amplification). The HF 2723 is a compromise between these two extremes.

5. klystron: The SK-707B is being copied. This is required for radar apparatus (so-called Kollisions-Schutz apparatus) by the VEB Funkwerk Koepenick and Dr. Lange of the VEB Fernmeldewerk Leipzig. This tube must be ready by the end of the second quarter. A 3 cms power klystron is also to be developed.

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6. push-pull tetrode. The Philips valve QQG 40/06 is being copied.

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7. [ ] AG 1041 thyratron. This is a copy of the PL 21 (#2 D 21). 25X1
8. [ ] 6 AG 7 and 6 AG 7. Attempts are to be made to increase the life to 10,000 hours by lowering the cathode temperature and using fire-gilded grid wire (feuer-vergoldene Gitterdrahte).
9. [ ] PL 81 and PL 83. Work on these has been suspended for a time in favor of the work on the VHF receiver tubes. Work will be resumed in March, by the end of which month five of each type are to be ready. 25X1  
NOTE: The PL 82 is not being developed by this factory.
10. [ ] metal ceramics. This is a Soviet order. The life is to be increased to at least 1,000 hours. The amplification characteristics at 8 cms are to be improved so the tube must not self-excite - so that it could be used in chain amplifiers. The plan is to develop a tube similar to the LD 12, but with smaller distances between the grids, and with special design of grids. The exact details are not yet certain. 25X1

#### 4. Television projects:

- a. Petkoschek is in charge of the development of a commercial television set which will use only 14 valves, and is to be sold for less than 1,000 DM (East). Two prototypes are to be ready by 31 March 1953. The set is to be tuneable to all three usual TV channels, but is to have the Soviet standard interval of 5.5 mms between the sound and vision channels. The tubes to be incorporated are the EY 51, FY 80, PL 81, PL 83, PCL 81, PABO 80, EF 80, EF 85 LK 23 and ECC-81.
- b. Dr. Neidhardt is studying the various systems of color television so far developed abroad. It is intended to develop a color TV set in 1954.
- c. Frau Dipl. Chem. Torley of the Leuchtstofflabor is developing luminescent materials for use with color television sets. Frau Torley, formerly Frau Mueller, was in the USSR with Dr. Rothgardt.

#### 5. Memory Tubes:

Wenderoth is developing an "Impuls-Code-Roehre" and a "Sekundaer-Emissions-Schalter", both of which could be described as cathode ray storage tubes. Further details are not yet available.

#### 6. High pressure lamps:

The high pressure lamps with rare gas filling (XBO 500) manufactured by the factory have a very intense point source of light. The specification states that the visible spectrum must resemble so far as possible the solar spectrum. It is not known if any importance is attached to emissions outside the visible spectrum. The lamps could be used for stage lighting, or as a light source for a loop oscillograph.

#### 7. Electronic tubes

The T.113 and T.114 electronic tubes are amplifiers designed for use with a very high entry resistance, for example with photocells. The T.113 is assembled on a hard glass base and has an entry resistance (grid-cathode) of  $10^9$  ohms; the T.114 is assembled on a quartz base and has an entry resistance of  $10^{12}$  ohms. They have an anode voltage of 8-12 volts.

#### Transistors:

Dipl. Ing. Becherer has succeeded Dr. Bingel, and is now responsible for work on transistors conducted by the factory. Work has, however, had to be suspended because no germanium is available.

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9. Gnom tube production:

It was decided at a meeting held on 3 February 1953 in the State Planning Commission and attended by Dr. Schiller (Werk HF), Rohr (Ministry for Posts & Telecommunications Hauptverwaltung Funk), Klist (Min. for Posts & Telecommunications, Hauptverwaltung Funk), Nietzsche (Ministry for Finance), Scheithauer (State Planning Commission, Electrotechnics), Specht (State Planning Commission, Posts & Telecommunications) that production of the Gnom series of tubes was to stop forthwith. It was estimated that a loss of 3.5 Million DM East would be incurred as a result of the failure of this project. Orders would have to be transferred to the VEB Funkwerk Erfurt to provide work for staff set free by the cancellation of the Gnom program. These would include the ECC 81 and 6 AK 5, which Erfurt would commence to manufacture in the third quarter, 1953, after the Werk HF had completed the development work.

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